

Sensor station user group gathering

*Updates, usage of Monitor My Watershed, and
presentations/discussions*

*Friday, October 18, 2019, 10a-3:30p at
Brodhead Creek Heritage Center, 1539 Cherry Lane Rd, East Stroudsburg, PA 1830)*



Sensor Station User Group Gathering cumulative
notes: https://docs.google.com/document/d/1tuWYtmRrsW0tz_mOGf22tXoOnvfgNrkJ-mYk1rWsU/edit#

STROUD
WATER RESEARCH CENTER

Wifi

- **User: Brodhead Watershed Assoc guest**
- **Pass: brodhead425**

Attendees

Name	Organization
Bruce Karpe	Swenson Arts & Technology High School
Chuck Wagner	Nature Conservancy
Dave Yake	WHAT - Watershed Hydrological Analysis Team
David Bressler	SWRC
Gary A. Grahl	PSU Master Watershed Stewards
George Seeds	PSU Master Watershed Stewards
Jacqline Wolf Tice	MWS - Penn State Ext
Janel Fishpaw	Trout Unlimited
Kathy Brown	Watershed Steward
Kim Hachadoorian	The Nature Conservancy
Kristine Rogers	Wallkill River Watershed Management Group
Lauren McGrath	Willistown Conservation Trust
Mary J Budkoski	master watershed steward, northampton county
Michael Stein	Brodhead Watershed Association
Nicholas Ho	The Watershed Institute
Paul Wilson	East Stroudsburg University
Rachel Johnson	SWRC
Richard Cattermole	Berks Master Watershed Stewards
Robert Fendelander	Brodhead watershed
Robert Sarnoski	Angelic & Tulpehocken Creek Watershed Associations
Shannon Hicks	SWRC
Simon Molloy	Watershed Steward

2019 workshops

Event	Title	Date	Location
EnviroDIY - PDE Summit, Presentation	EnviroDIY Sensor Stations for Education and Watershed Monitoring: A Case Study on Pickering Creek at Montgomery School, Chester Springs, PA	29-Jan-19	Grand Hotel of Cape May, 1045 Beach Avenue, Cape May, NJ 08204
DRWI Winter Gathering, 90minute Session	Using continuous sensors to reach goals in science, education, and community engagement: case studies from across the Delaware River basin	12-Feb-19	Bear Creek Mountain Resort and Conference Center - 101 Doe Mountain Lane - Macungie, PA 18062
EnviroDIY - Sensor Station Management Workshop, Spring	Sensor Station Management Workshop	13-Mar-19	Stroud
NWQMC 2019 conference presentation	The day-to-day of monitoring with EnviroDIY sensor stations: a case study on Ridley Creek in Chester County, PA	27-Mar-19	NMC 2019 Conference, March 25-29, Denver, CO
EnviroDIY - NWQMC National Monitoring Conference, Presentation	The day-to-day of monitoring with EnviroDIY sensor stations: a case study on Ridley Creek in Chester County, PA	28-Mar-19	Sheraton Denver Downtown Hotel, Denver, Colorado
EnviroDIY - Introduction to EnviroDIY Workshop (one day)	Introduction to EnviroDIY Sensor Stations	8-May-19	Stroud
EnviroDIY - Sensor Station User Group Gathering, Spring	Sensor Station User Group Gathering	24-May-19	Great Marsh Institute
Watershed 201 - Discharge and TSS	Building a TSS lab and measuring discharge	7-Jun-19	Willistown Conservation Trust, Rusthton Conservation Center
River Rally 2019	EnviroDIY: a hands-on electronics for monitoring workshop	22-Jun-19	River Rally, June 21-24, 2019, Cleveland, Ohio
PSU Master Watershed Stewards, Sensor station training	PSU Master Watershed Stewards, Sensor station training	20-Jul-19	Berks County Ag Center
EnviroDIY - Sensor Station Management Workshop, Summer	Sensor Station Management Workshop	10-Aug-19	Cherry Valley National Wildlife Refuge
EnviroDIY - Sensor Station User Group Gathering, Fall/Winter	Sensor Station User Group Gathering	18-Oct-19	Brodhead Creek Heritage Center

Things attendees wanted to address today

What questions/issues would you like to discuss at this gathering?
How do I use Monitor My Watershed for data visualization?
Sensors, cellular networks
Trouble shooting staff gauge issues
Low cost remediation for water compromised streams and rivers
-
I'm open to anything water related.
Analyzing and presenting data from stream monitoring
No particular issues at this point. Want to continue to learn and hear others experiences. Will let you know if discussion issues arise before 10/18.
What types of sensor data is most useful in the data collection process, including what is not in the current Mayfly setup (what do users want in addition to CTD/Turbidity). What types of equipment (sensors) are available or being tested that are more in the budget range of educational users (lower cost than research grade).
data analysis challenges from the participants and areas where "WHAT" can help
data monitoring system troubleshooting
None. Just looking for information
issues with battery strength: fluctuates up and down
New 4G network, Path forward
-
Use of data collected. Typical uses, other uses, big picture that Stroud is seeing.
4G

Updates

- Staff gauges – resiliency and in-stream pin backup method
- Black staining on turbidity sensors – oxalic acid treatments
- Stroud Center data set analyses
- Maintenance and QC quick guides
- PSU Master Watershed Steward station assistance
- Shannon Hicks and Rachel Johnson upgrading stations
- Direct data transmission to Monitor My Watershed
- Monitor My Watershed file formatting
 - .csv file uploads to Monitor My Watershed
- 4G cellular upgrades – new cellular modem on loggers

Staff gauges – resiliency and in-stream pin backup method

- Moved from 1/2in pipe to 3/4in
- Staggered and leveled 1m sections when depth exceeds 1m



Staff gauges – resiliency and in-stream pin backup method

- Rebar pounded into stream bed – same idea as with staff gauge, offset between pin and sensor station
- Depth and staff gauge
- Paul Wilson and his ESU students started this



Item # 9883 Model # 831947

Steel Rebar Pins (Common: 0.75-in x 24-in; Actual: 0.75-in x 24-in)



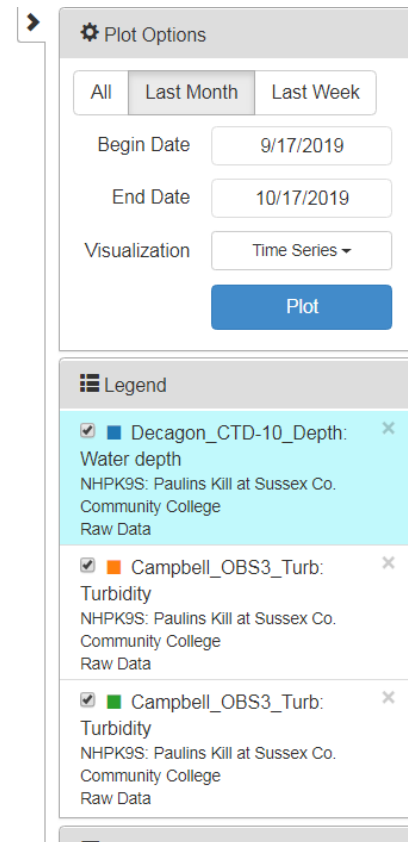
Black staining on turbidity sensors – oxalic acid treatments

- Shannon Hicks and Rachel Johnson have been doing these treatments as needed – be in touch if your turbidity sensor needs attention
- *If staining is an issue turbidity will be low (e.g., NTU 0-5) even when water is muddy



Black staining on turbidity sensors – oxalic acid treatments

- *If staining is an issue turbidity will be low (e.g., NTU 0-5) even when water is muddy



Stroud Center data set analyses

- Delaware Watershed Research Conference, Nov 19, 2019 at The Academy of Natural Sciences of Drexel University
 - Bressler, “Part 1. Citizen science and continuous sensors - spatial and temporal patterns of specific conductivity and water temperature in streams and rivers of the Delaware River Basin”
 - Oviedo-Vargas, “Part 2. Spatial and temporal patterns of specific conductivity in streams and rivers of the Delaware River Basin”
 - Peipoch, “Part 3. Spatial and temporal patterns of water temperature in streams and rivers of the Delaware River Basin”
- Presumably peer-review publications following

Maintenance and QC quick guides

Download at: <https://wikiwatershed.org/drwi/>; pass: drwi

EnviroDIY Sensor Stations

Maintenance Quick Guide



Stroud Center contacts:

- General:
 - David Bressler: dbressler@stroudcenter.org
410-456-1071 (cell), 610-268-2153, ext. 312 (office)
- Technical:
 - Shannon Hicks: shicks@stroudcenter.org
302-304-0957 (cell), 610-268-2153, ext. 267 (office);
 - Rachel Johnson: rjohnson@stroudcenter.org
973-557-8995 (cell)

EnviroDIY Sensor Stations

Quality Control Quick Guide



Stroud Center contacts:

- General:
 - David Bressler: dbressler@stroudcenter.org
410-456-1071 (cell), 610-268-2153, ext. 312 (office)
- Technical:
 - Shannon Hicks: shicks@stroudcenter.org
302-304-0957 (cell), 610-268-2153, ext. 267 (office);
 - Rachel Johnson: rjohnson@stroudcenter.org
973-557-8995 (cell)

PSU Master Watershed Steward station assistance

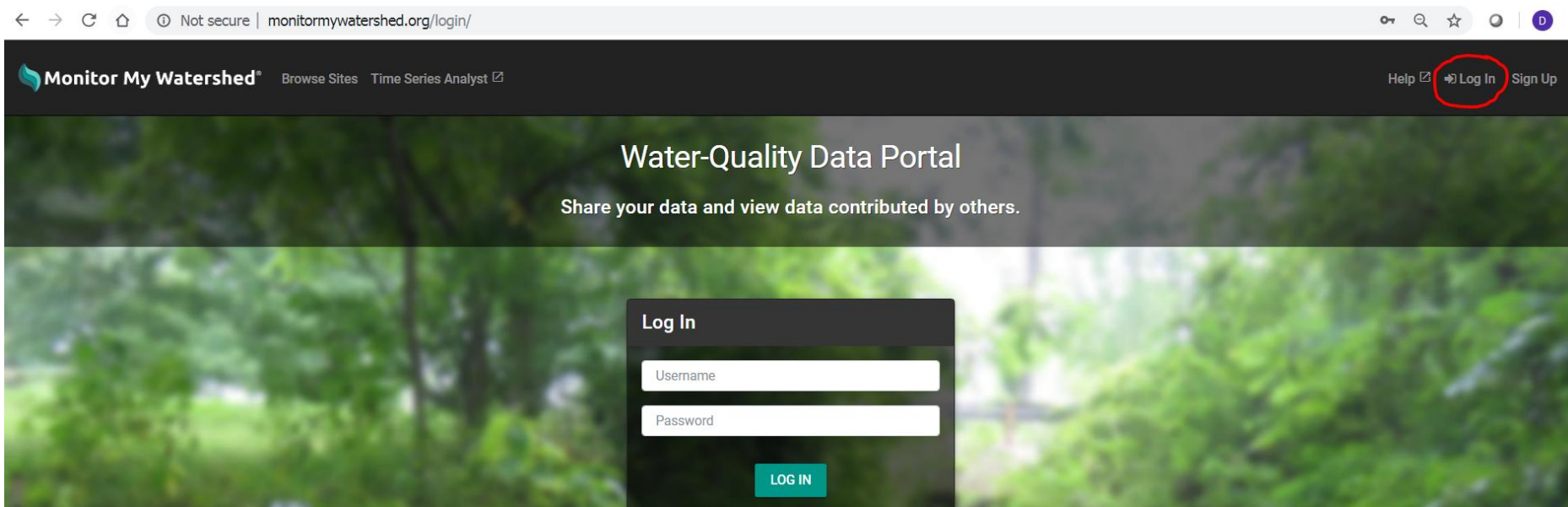
- Penn State Master Watershed Stewards received training on July 20, 2019 and August 10, 2019
 - Stroud helping to point MWStewards to stations that need support
 - Coordinating with the station owners
 - Mentors, site assistance
 - Carol Armstrong
 - George Seeds
 - Christa Reeves
 - Rachel Johnson

Upgrading stations

- Shannon Hicks and Rachel Johnson are currently upgrading stations
 - Upgrading to 4G cell capacity
 - Reprogramming stations to send data directly to MonitorMW
 - Also, microSD card files auto-formatted for direct upload to MonitorMW – can fill in gaps when cell drops

Monitor My Watershed

- Remember, for station owners:
 - Login and edit main page
 - User name is usually: first name initial plus last name, e.g., “dbressler”
 - Pass is “stroud970” unless reset by owner
 - *Don’t need to login to view or visualize data – just to edit details page and to upload data



The screenshot shows a web browser at the URL `monitormywatershed.org/login/`. The page features a dark header with the "Monitor My Watershed" logo, navigation links for "Browse Sites" and "Time Series Analyst", and utility links for "Help", "Log In", and "Sign Up". The "Log In" link is circled in red. The main content area has a green background with the text "Water-Quality Data Portal" and "Share your data and view data contributed by others." Below this is a "Log In" form with fields for "Username" and "Password", and a teal "LOG IN" button.

← → ↻ ⌂ ⓘ Not secure | monitormywatershed.org/login/ 🔑 🔍 ☆ 🔄 | D

Monitor My Watershed® Browse Sites Time Series Analyst ↗ Help ⓘ **Log In** Sign Up

Water-Quality Data Portal

Share your data and view data contributed by others.

Log In

LOG IN

Monitor My Watershed

- Uploading historic data (i.e., data files in old format, not formatted for direct transmission or upload to MonitorMW)
 - To format historic microSD card files for upload to MonitorMW use these directions (*currently beta testing – please provide feedback*): Section 4.3 <https://wikiwatershed.org/help/sensor-help/sharing-sensor-data/>
 - UUIDs necessary in column headers and other formatting requirements
 - A UUID is a Universally Unique Identifier (also called a GUID or Globally Unique Identifier). They are 36 characters long and are made of numbers 0-9 and the letters a-f, e.g., 12345678-abcd-1234-efgh-1234567890ab.

Monitor My Watershed

- Loggers currently being reprogrammed to send data directly to Monitor My Watershed or upload microSD card file
 - Previously files were not formatted so that they could be directly transmitted (went to drwisensors.dreamhosters.com and were copied in 30min increments to MonMW)
 - New formatting including UUID column headers
 - These data transmitted directly to MonMW
 - Files from SD card can be directly uploaded to MonMW
 - To fill data gaps
 - Or if not online

Monitor My Watershed file formatting

File can be directly uploaded to Monitor My Watershed – required fields in bold, others are not necessary

Data Logger: SL082_Ramsey						
Data Logger File: SL082_Ramsey_2019-10-01.csv						
Sampling Feature UUID: 85d2450f-a802-4c4f-8664-be32277d3c08						
Sensor Name:	DecagonCTD	DecagonCTD	DecagonCTD	CampbellOBS3	CampbellC	MaximDS3 EnviroDIY
Variable Name:	specificConductance	temperature	waterDepth	turbidity	turbidity	temperatu batteryVol
Result Unit:	microsiemenPerCentimeter	degreeCelsius	millimeter	nephelometricTurbidityUnit	nephelome	degreeCel: volt
Result UUID:	de4a6bf7-3def-4e0d-a60a-8a3879673945	ff3ec931-3fe3-4a17-9e26-e3f8323bc6ff	e48623f5-44ec-4f2a-abd8-fe9ee1afe107	a0eddceb-eab8-4c67-bba0-cc3cd11390e3	e6dd7d0e-a9fb6aa5-9ad8e5fe-	
Date and Time in UTC-5	CTDcond	CTDtemp	CTDdepth	TurbLow	TurbHigh	BoardTem Battery
2019-10-01 15:20:00	229.8	20.5	70.3	3.40546	3.46751	25.75 4.154
2019-10-01 15:25:00	229.5	20.5	70.3	2.65774	2.66096	25.75 4.139
2019-10-01 15:30:00	230.3	20.5	69.8	3.64296	3.47698	25.75 4.139
2019-10-01 15:35:00	231.2	20.5	70	2.65204	2.64674	25.75 4.139
2019-10-01 15:40:00	231.2	20.5	70	2.60183	2.62302	25.75 4.139
2019-10-01 15:45:00	230.7	20.5	68.3	3.5048	3.55292	25.5 4.139
2019-10-01 15:50:00	230.8	20.5	69	2.57559	2.6088	25.5 4.139
2019-10-01 15:55:00	230.5	20.5	68.7	2.61667	2.66571	25.5 4.139
2019-10-01 16:00:00	229.2	20.5	69	2.70909	2.74634	25.25 4.139
2019-10-01 16:05:00	229.8	20.5	69.2	2.74789	2.80325	25.25 4.139
2019-10-01 16:10:00	230.8	20.5	69.8	2.68171	2.75108	25.25 4.139
2019-10-01 16:15:00	229.5	20.5	69.2	2.53794	2.56611	25.25 4.139
2019-10-01 16:20:00	228.8	20.5	69.2	2.56874	2.60405	25.25 4.139
2019-10-01 16:25:00	230.2	20.5	69.2	2.56646	2.59931	25.25 4.139
2019-10-01 16:30:00	229.7	20.5	69.2	2.69198	2.81749	25 4.139

*Important: yyyy-mm-dd HH:MM:SS

Monitor My Watershed file formatting

Monitor My Watershed® My Sites Browse Sites Time Series Analyst

Pickering Creek Eastern Trib at Bryn Coed Lane (SHPK3S) ☐ Follow

VIEW TOKEN UUID LIST **EDIT** **DELETE**

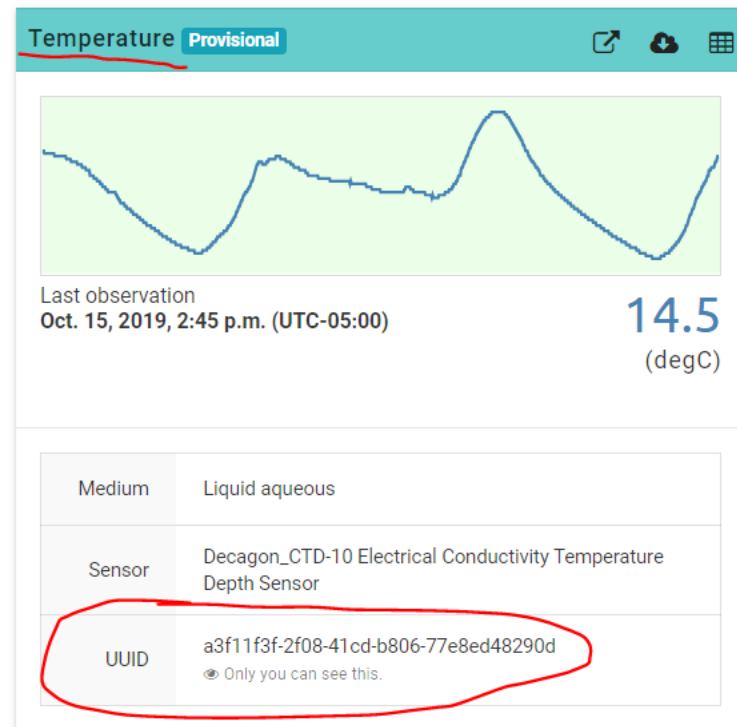
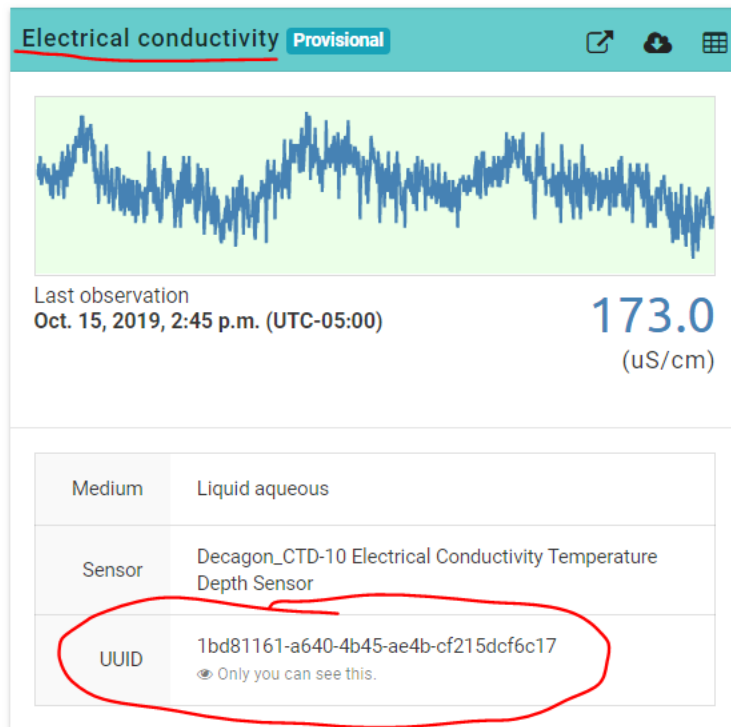
Deployment By	Michael Bullard
Organization	Green Valleys Watershed Association
Registration Date	June 7, 2017, 4:36 p.m.
Deployment Date	Jan. 22, 2018, 5 p.m.
Latitude	40.11525
Longitude	-75.60562

Map Satellite

Kimberton Rd

```
const char *REGISTRATION_TOKEN = "113751bb-2553-415d-ae10-46b40737829a"; // Device registration token
const char *SAMPLING_FEATURE = "2f296c60-d2eb-48b1-b158-2d3dbf59a3c3"; // Sampling feature UUID
const char *UUIDs[] = // UUID array for device sensors
{
    "c5642a5c-f1e1-429b-8783-13059436ab13", // Temperature (EnviroDIY_Mayfly_Temp)
    "7a5a7e24-43b6-4941-b1d1-0a618a5f8660", // Battery voltage (EnviroDIY_Mayfly_Batt)
    "1bd81161-a640-4b45-ae4b-cf215dcf6c17", // Electrical conductivity (Decagon_CTD-10_Cond)
    "a3f11f3f-2f08-41cd-b806-77e8ed48290d", // Temperature (Decagon_CTD-10_Temp)
    "7970df3d-bf56-4e70-b384-b08180f8c5d7", // Water depth (Decagon_CTD-10_Depth)
    "0e364d90-7302-42bf-9342-c15278002972", // Turbidity (Campbell_OBS3_Turb)
    "75859e89-e579-4b94-a3e6-f61bef8c0b6f" // Turbidity (Campbell_OBS3_Turb)
};
```

Monitor My Watershed file formatting



4G upgrades

- Better spatial cell coverage now with 4G
- Hicks and Johnson currently updating stations
- Increased cost, up to ~\$13/month
- ~\$100 for hardware



Formatting old files for MonMW data upload

- <https://wikiwatershed.org/help/sensor-help/sharing-sensor-data/>

wikiwatershed.org/help/sensor-help/

WikiWatershed® About Model Monitor Mobile App Macros Help News ▾ Contact Log In 🔍

Web Tools Advancing Knowledge and Stewardship of Fresh Water

Like Us Follow Us Subscribe GitHub

STROUD
WATER RESEARCH CENTER

WikiWatershed is an initiative of [Stroud™ Water Research Center](#). The Stroud Center seeks to advance knowledge and stewardship of freshwater systems through global research, education, and watershed restoration.

Home » Help » Sensor Data Help

Sensor Data Help

Monitor My Watershed® **EnviroDIY**

[Monitor My Watershed®](#) is a data portal that allows you to share and explore do-it-yourself environmental monitoring data. It currently hosts [EnviroDIY™](#) sensor data and [Leaf Pack Network®](#) macroinvertebrate data. Monitor My Watershed is part of the WikiWatershed® toolkit.

Resources

Have a question about sharing sensor data on Monitor My Watershed? We ask that before you submit a question by email, please try:

1. Searching the documentation
 - i. [How to Share Sensor Data on Monitor My Watershed](#) (including manual uploads)
 - ii. [Getting Started with the Mayfly Data Logger](#) (hardware details, software instructions, sensor station manual)
2. Searching the [EnviroDIY forums](#) for similar issues. Posting your question on the forum will allow the 500+ EnviroDIY community members to help.
3. Checking GitHub for known issues (see below).

NEWS

- WikiWatershed® Wins Green Stormwater Infrastructure Award
- Help Us Improve the WikiWatershed Toolkit
- The Digital Learning Tool Flooding Classrooms Coast-to-Coast
- Model My Watershed Release 1.24
- Amazon Names Model My Watershed a "City on a Cloud Innovation Challenge" Winner

Get updates about WikiWatershed news.

Subscribe


Formatting old files for MonMW data upload

- Open old file in Excel

SL154 - Mayfly CTD & Turbidity Logger									
DateTime_EST	TZ-Offset	Loggertime	BoardTemp	Battery_V	CTD_Depth_mm	CTD_temp_DegC	CTD_cond_dS/m	Turb_low_NTU	Turb_high_NTU
4/5/2018 13:10	-5	576249000	9.5	4.12	397	7	493.3	1.8	0.7
4/5/2018 13:15	-5	576249300	10.8	4.14	395.3	7.1	497.3	1.6	0.6
4/5/2018 13:20	-5	576249600	10.3	4.15	395.3	7.1	493.3	1.8	0.6
4/5/2018 13:25	-5	576249900	10.3	4.14	402	7	495.7	1.7	0.6
4/5/2018 13:30	-5	576250200	9.8	4.14	406.3	7	494.7	2.4	1.4
4/5/2018 13:35	-5	576250500	9.5	4.14	405.3	6.9	485.7	1.8	0.6
4/5/2018 13:40	-5	576250800	9.3	4.14	398	6.9	488.7	1.7	0.6
4/5/2018 13:45	-5	576251100	9	4.14	393.7	6.9	484	1.7	0.6
4/5/2018 13:50	-5	576251400	8.8	4.14	392.3	6.9	489.3	1.7	0.6
4/5/2018 13:55	-5	576251700	8.5	4.14	394.3	6.8	490.7	1.7	0.6
4/5/2018 14:00	-5	576252000	8.5	4.14	395	6.8	497	1.8	0.7
4/5/2018 14:05	-5	576252300	8	4.14	394.3	6.8	497.7	1.7	0.7
4/5/2018 14:10	-5	576252600	8.3	4.14	397	6.8	490.3	1.7	0.6
4/5/2018 14:15	-5	576252900	8.3	4.14	399.3	6.7	483	2.1	1.1
4/5/2018 14:20	-5	576253200	8.3	4.14	396	6.7	488	1.7	0.6
4/5/2018 14:25	-5	576253500	8.3	4.14	393.7	6.7	480.3	1.8	0.6
4/5/2018 14:30	-5	576253800	8.3	4.14	391	6.7	480.3	1.6	0.5
4/5/2018 14:35	-5	576254100	8	4.14	389.3	6.6	477	1.9	0.8
4/5/2018 14:40	-5	576254400	8	4.14	393.7	6.6	476	1.7	0.6
4/5/2018 14:45	-5	576254700	7.8	4.14	397	6.6	477.3	1.6	0.6

Formatting old files for MonMW data upload

- Insert three rows at top of sheet



SL154 - Mayfly CTD & Turbidity Logger									
DateTime_EST	TZ-Offset	Loggertime	BoardTemp	Battery_V	CTD_Depth_mm	CTD_temp_DegC	CTD_cond_ds/m	Turb_low_NTU	Turb_high_NTU
4/5/2018 13:10	-5	576249000	9.5	4.12	397	7	493.3	1.8	0.7
4/5/2018 13:15	-5	576249300	10.8	4.14	395.3	7.1	497.3	1.6	0.6
4/5/2018 13:20	-5	576249600	10.3	4.15	395.3	7.1	493.3	1.8	0.6
4/5/2018 13:25	-5	576249900	10.3	4.14	402	7	495.7	1.7	0.6
4/5/2018 13:30	-5	576250200	9.8	4.14	406.3	7	494.7	2.4	1.4
4/5/2018 13:35	-5	576250500	9.5	4.14	405.3	6.9	485.7	1.8	0.6
4/5/2018 13:40	-5	576250800	9.3	4.14	398	6.9	488.7	1.7	0.6
4/5/2018 13:45	-5	576251100	9	4.14	393.7	6.9	484	1.7	0.6
4/5/2018 13:50	-5	576251400	8.8	4.14	392.3	6.9	489.3	1.7	0.6
4/5/2018 13:55	-5	576251700	8.5	4.14	394.3	6.8	490.7	1.7	0.6
4/5/2018 14:00	-5	576252000	8.5	4.14	395	6.8	497	1.8	0.7
4/5/2018 14:05	-5	576252300	8	4.14	394.3	6.8	497.7	1.7	0.7
4/5/2018 14:10	-5	576252600	8.3	4.14	397	6.8	490.3	1.7	0.6
4/5/2018 14:15	-5	576252900	8.3	4.14	399.3	6.7	483	2.1	1.1
4/5/2018 14:20	-5	576253200	8.3	4.14	396	6.7	488	1.7	0.6
4/5/2018 14:25	-5	576253500	8.3	4.14	393.7	6.7	480.3	1.8	0.6
4/5/2018 14:30	-5	576253800	8.3	4.14	391	6.7	480.3	1.6	0.5

Formatting old files for MonMW data upload

- Add these exact words including punctuation (in bold below)

Sampling Feature UUID:						
Date and Time in UTC-5						
Result UUID:						
SL154 - Mayfly CTD & Turbidity Logger						
DateTime_EST	TZ-Offset	Loggertime	BoardTemp	Battery_V	CTD_Depth_mm	CTD_temp_
4/5/2018 13:10	-5	576249000	9.5	4.12	397	
4/5/2018 13:15	-5	576249300	10.8	4.14	395.3	

Formatting old files for MonMW data upload

- Log in to Monitor My Watershed with username and pass and go to your site

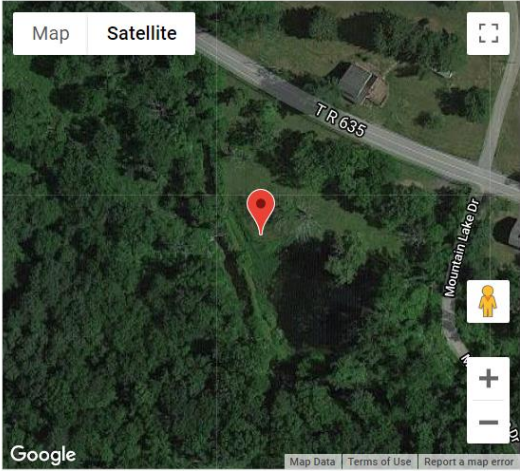
← → ↻ 🏠 ⓘ Not secure | monitormywatershed.org/sites/PKFH1S/ 🔍 ☆ 🌐 D

Monitor My Watershed® My Sites Browse Sites Time Series Analyst [Help](#) [Admin](#) Logged in as dbressler ▾

Forest Hill Run on Fendelander Property (PKFH1S) ☐ Follow

[VIEW TOKEN UUID LIST](#) [EDIT](#) [DELETE](#)

👤 Deployment By	Edie Stevens
🏢 Organization	Brodhead Watershed Association
📅 Registration Date	May 21, 2018, 2:22 p.m.
📅 Deployment Date	-
📍 Latitude	41.106106
📍 Longitude	-75.300068
📏 Elevation (m)	304.0
📏 Elevation Datum	-
🌿 Site Type	Stream
🗉 Stream Name	Forest Hill Run
🏔 Major Watershed	-



Map Satellite

Google

Map Data Terms of Use Report a map error


Formatting old files for MonMW data upload


- Click “VIEW TOKEN UUID LIST”


← → ↻ 🏠 ⓘ Not secure | monitormywatershed.org/sites/PKFH1S/ 🔍 ☆ 🌐 D

Monitor My Watershed® My Sites Browse Sites Time Series Analyst Help ⓘ Admin 🧑 Logged in as dbressler ▾

Forest Hill Run on Fendelander Property (PKFH1S) 📌 Follow

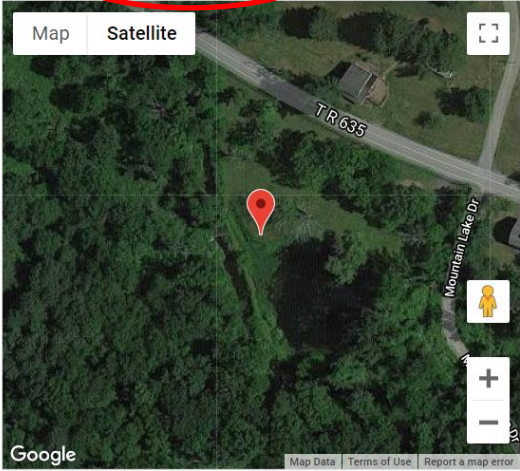
 VIEW TOKEN UUID LIST

 EDIT

 DELETE

👤 Deployment By	Edie Stevens
🏢 Organization	Brodhead Watershed Association
📅 Registration Date	May 21, 2018, 2:22 p.m.
📅 Deployment Date	-
📍 Latitude	41.106106
📍 Longitude	-75.300068
📏 Elevation (m)	304.0
📏 Elevation Datum	-
🌿 Site Type	Stream
🗉 Stream Name	Forest Hill Run
🏔 Major Watershed	-

Map Satellite



Google [Map Data](#) [Terms of Use](#) [Report a map error](#)

Formatting old files for MonMW data upload

- Click “VIEW TOKEN UUID LIST”

The screenshot shows a web browser at `monitormywatershed.org/sites/PKFH1S/`. The page title is "Forest Hill Run on Fendelander Property (PKFH1S)". A modal window titled "Token and UUID List" is open, displaying the following C code:

```
const char *REGISTRATION_TOKEN = "4e80f484-cacc-4ec5-a5a1-9e8e7b63bbf3"; // Device
const char *SAMPLING_FEATURE = "a248a74b-4f24-4ecf-8651-fd99ceb5c134"; // Sampli
const char *UUIDs[] = // UUID a
{
    "e51b2d04-139b-4abe-a7c3-4a28f59d1874", // Water depth (Decagon_CTD-10_Depth)
    "8919c9d2-2b95-47b4-84f7-912f943a3a63", // Temperature (Decagon_CTD-10_Temp)
    "3f02b00e-9cdb-4489-b1ff-edbc8284efa1", // Electrical conductivity (Decagon_CT
    "906340f5-6965-4851-a096-85c0323f8009", // Turbidity (Campbell_OBS3_Turb)
    "bdd1af6f-f8f8-4f6a-b31d-e2c90e87332f", // Turbidity (Campbell_OBS3_Turb)
    "0562b262-2810-4221-b365-36fe078acc10", // Temperature (EnviroDIY_Mayfly_Temp)
    "e57409f2-751c-41d1-81ed-49a31e66f1f1" // Battery voltage (EnviroDIY_Mayfly_B
};
```

The modal has "CLOSE" and "COPY" buttons. The background page shows a sidebar with fields like "Deployment By", "Organization", "Registration Date", "Deployment Date", "Latitude", "Longitude", "Elevation (m)", and "Elevation Datum". A map on the right shows the location with a "Follow" button and "EDIT" and "DELETE" buttons.

Formatting old files for MonMW data upload

- Copy Sampling Feature UUID (bold below) and paste after colon (one space) into data file (in red below)

```
const char *REGISTRATION_TOKEN = "4e80f484-cacc-4ec5-a5a1-9e8e7b63bbf3"; // Device registration token
const char *SAMPLING_FEATURE = "a248a74b-4f24-4ecf-8651-fd99ceb5c134"; // Sampling feature UUID
const char *UUIDs[] = // UUID array for device sensors
{
    "e51b2d04-139b-4abe-a7c3-4a28f59d1874", // Water depth (Decagon_CTD-10_Depth)
    "8919c9d2-2b95-47b4-84f7-912f943a3a63", // Temperature (Decagon_CTD-10_Temp)
    "3f02b00e-9cdb-4489-b1ff-edbc8284efa1", // Electrical conductivity (Decagon_CTD-10_Conc)
    "906340f5-6965-4851-a096-85c0323f8009", // Turbidity (Campbell_OBS3_Turb)
    "bdd1af6f-f8f8-4f6a-b31d-e2c90e87332f", // Turbidity (Campbell_OBS3_Turb)
    "0562b262-2810-4221-b365-36fe078acc10", // Temperature (EnviroDIY_Mayfly_Temp)
    "e57409f2-751c-41d1-81ed-49a31e66f1f1" // Battery voltage (EnviroDIY_Mayfly_Batt)
};
```

Sampling Feature UUID: a248a74b-4f24-4ecf-8651-fd99ceb5c134

Date and Time in UTC-5

Result UUID:

SL154 - Mayfly CTD & Turbidity Logger

DateTime_EST	TZ-Offset	Loggertime	BoardTemp	Battery_V	CTD_Depth_mm	CTD_temp_DegC	C
4/5/2018 13:10	-5	576249000	9.5	4.12	397	7	
4/5/2018 13:15	-5	576249300	10.8	4.14	395.3	7.1	

Formatting old files for MonMW data upload

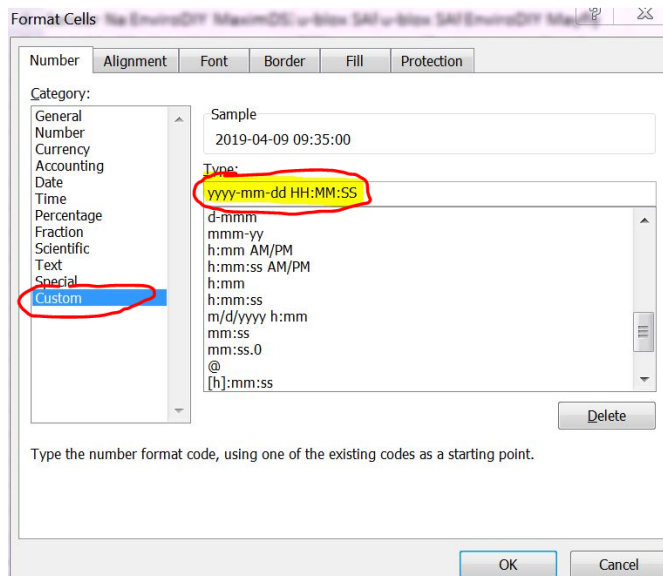
- Copy Result UUIDs (bold below) and paste in corresponding columns in Result UUID row in data file (in red below)

```
const char *REGISTRATION_TOKEN = "4e80f484-cacc-4ec5-a5a1-9e8e7b63bbf3"; // Device registration token
const char *SAMPLING_FEATURE = "a248a74b-4f24-4ecf-8651-fd99ceb5c134"; // Sampling feature UUID
const char *UUIDs[] = // UUID array for device sensors
{
    "e51b2d04-139b-4abe-a7c3-4a28f59d1874", // Water depth (Decagon_CTD-10_Depth)
    "8919c9d2-2b95-47b4-84f7-912f943a3a63", // Temperature (Decagon_CTD-10_Temp)
    "3f02b00e-9cdb-4489-b1ff-edbc8284efa1", // Electrical conductivity (Decagon_CTD-10_Cond)
    "906340f5-6965-4851-a096-85c0323f8009", // Turbidity (Campbell_OBS3_Turb)
    "bdd1af6f-f8f8-4f6a-b31d-e2c90e87332f", // Turbidity (Campbell_OBS3_Turb)
    "0562b262-2810-4221-b365-36fe078acc10", // Temperature (EnviroDIY_Mayfly_Temp)
    "e57409f2-751c-41d1-81ed-49a31e66f1f1" // Battery voltage (EnviroDIY_Mayfly_Batt)
};
```

Sampling Feature UUID: a248a74b-4f24-4ecf-8651-fd99ceb5c134									
Date and Time in UTC-5									
Result UUID:			0562b262-2810	e57409f2-751c	e51b2d04-139b	8919c9d2-2b95-4	3f02b00e-9cdb-4	906340f5-6965-	bdd1af6
SL154 - Mayfly CTD & Turbidity Logger									
DateTime_EST	TZ-Offset	Loggertime	BoardTemp	Battery_V	CTD_Depth_mm	CTD_temp_DegC	CTD_cond_dS/m	Turb_low_NTU	Turb_high_NTU
4/5/2018 13:10	-5	576249000	9.5	4.12	397	7	493.3	1.8	
4/5/2018 13:15	-5	576249300	10.8	4.14	395.3	7.1	497.3	1.6	

Formatting old files for MonMW data upload

- Reformat column 1 (DateTime_EST) to “yyyy-mm-dd HH:MM:SS”

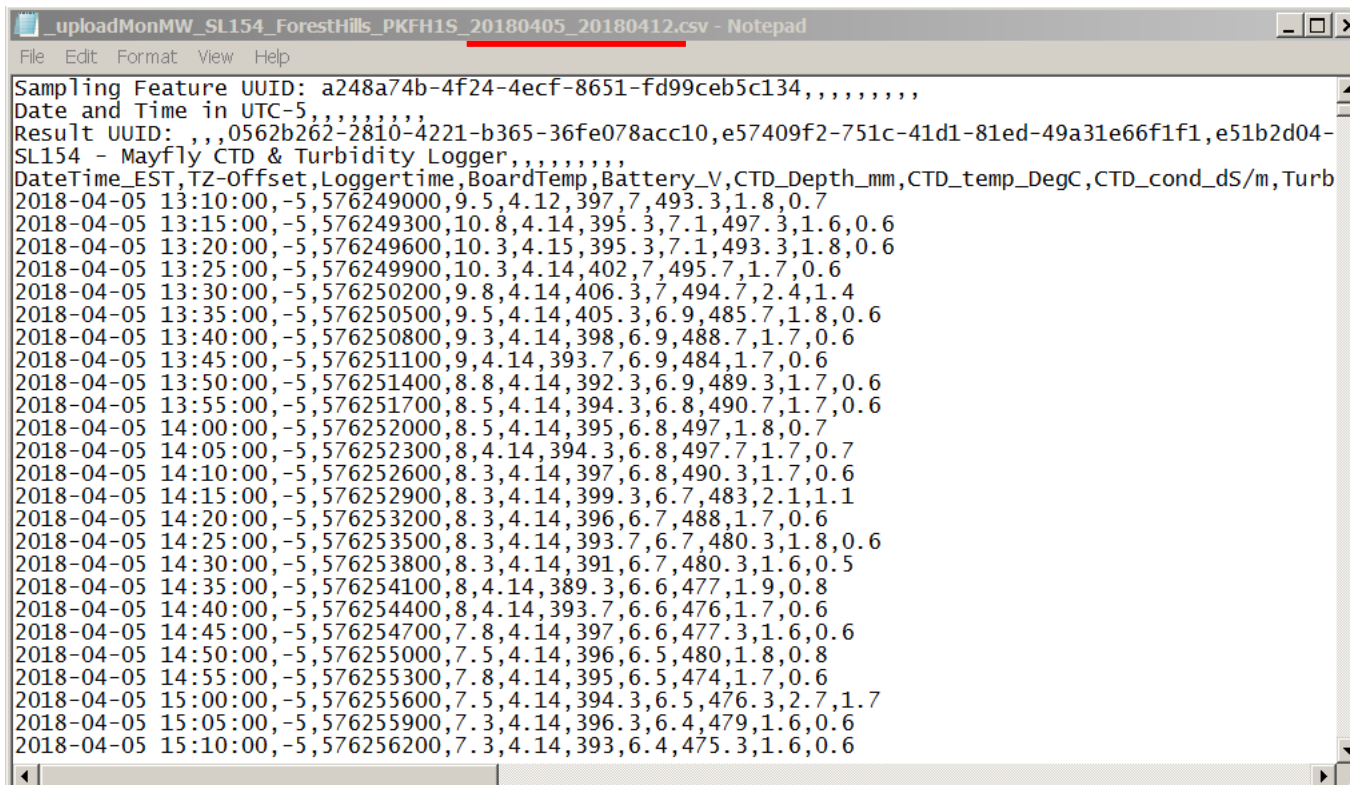


Sampling Feature UUID: a248a74b-4f2.	
Date and Time in UTC-5	
Result UUID:	
SL154 - Mayfly CTD & Turbidity Logger	
DateTime_EST	
	4/5/2018 13:10
	4/5/2018 13:15
	4/5/2018 13:20
	4/5/2018 13:25
	4/5/2018 13:30

Sampling Feature UUID: a248a74b-4f2.	
Date and Time in UTC-5	
Result UUID:	
SL154 - Mayfly CTD & Turbidity Logger	
DateTime_EST	
	2018-04-05 13:10:00
	2018-04-05 13:15:00
	2018-04-05 13:20:00
	2018-04-05 13:25:00
	2018-04-05 13:30:00

Formatting old files for MonMW data upload

- Save As “.csv” file (comma separated values)
- Open this csv file in Notepad
- Delete enough records so that there is 1 week of data (*currently MonMW can only accommodate this size file for uploads)
- Save As with new name indicating date range in title (see red below)



```
_uploadMonMW_SL154_ForestHills_PKFH1S_20180405_20180412.csv - Notepad
File Edit Format View Help
Sampling Feature UUID: a248a74b-4f24-4ecf-8651-fd99ceb5c134,,,,,,
Date and Time in UTC-5,,,,,,
Result UUID: ,,,0562b262-2810-4221-b365-36fe078acc10,e57409f2-751c-41d1-81ed-49a31e66f1f1,e51b2d04-
SL154 - Mayfly CTD & Turbidity Logger,,,,,,
DateTime_EST,TZ-Offset,Loggertime,BoardTemp,Battery_V,CTD_Depth_mm,CTD_temp_DegC,CTD_cond_dS/m,Turb
2018-04-05 13:10:00,-5,576249000,9.5,4.12,397.7,493.3,1.8,0.7
2018-04-05 13:15:00,-5,576249300,10.8,4.14,395.3,7.1,497.3,1.6,0.6
2018-04-05 13:20:00,-5,576249600,10.3,4.15,395.3,7.1,493.3,1.8,0.6
2018-04-05 13:25:00,-5,576249900,10.3,4.14,402.7,495.7,1.7,0.6
2018-04-05 13:30:00,-5,576250200,9.8,4.14,406.3,7.494.7,2.4,1.4
2018-04-05 13:35:00,-5,576250500,9.5,4.14,405.3,6.9,485.7,1.8,0.6
2018-04-05 13:40:00,-5,576250800,9.3,4.14,398.6,9.488.7,1.7,0.6
2018-04-05 13:45:00,-5,576251100,9.4,4.14,393.7,6.9,484.1,7.0,6
2018-04-05 13:50:00,-5,576251400,8.8,4.14,392.3,6.9,489.3,1.7,0.6
2018-04-05 13:55:00,-5,576251700,8.5,4.14,394.3,6.8,490.7,1.7,0.6
2018-04-05 14:00:00,-5,576252000,8.5,4.14,395.6,8.497.1,8.0,7
2018-04-05 14:05:00,-5,576252300,8.4,4.14,394.3,6.8,497.7,1.7,0.7
2018-04-05 14:10:00,-5,576252600,8.3,4.14,397.6,8.490.3,1.7,0.6
2018-04-05 14:15:00,-5,576252900,8.3,4.14,399.3,6.7,483.2,1.1,1.1
2018-04-05 14:20:00,-5,576253200,8.3,4.14,396.6,7.488.1,7.0,6
2018-04-05 14:25:00,-5,576253500,8.3,4.14,393.7,6.7,480.3,1.8,0.6
2018-04-05 14:30:00,-5,576253800,8.3,4.14,391.6,7.480.3,1.6,0.5
2018-04-05 14:35:00,-5,576254100,8.4,4.14,389.3,6.6,477.1,9.0,8
2018-04-05 14:40:00,-5,576254400,8.4,4.14,393.7,6.6,476.1,7.0,6
2018-04-05 14:45:00,-5,576254700,7.8,4.14,397.6,6.477.3,1.6,0.6
2018-04-05 14:50:00,-5,576255000,7.5,4.14,396.6,5.480.1,8.0,8
2018-04-05 14:55:00,-5,576255300,7.8,4.14,395.6,5.474.1,7.0,6
2018-04-05 15:00:00,-5,576255600,7.5,4.14,394.3,6.5,476.3,2.7,1.7
2018-04-05 15:05:00,-5,576255900,7.3,4.14,396.3,6.4,479.1,6.0,6
2018-04-05 15:10:00,-5,576256200,7.3,4.14,393.6,4.475.3,1.6,0.6
```

Formatting old files for MonMW data upload

- Continue process of making new csv files in Notepad in 1-week increments, working from the original csv file that contained all data from microSD card data download
- Then begin uploading these files to Monitor My Watershed




Uploading files to Monitor My Watershed

- Make sure you're logged in and are able to edit your sites (circled in red below – all should be present if you're logged in)


← → ↻ 🏠 Not secure | monitormywatershed.org/sites/PKFH1S/ 🔍 ☆ 🔄 ⓘ

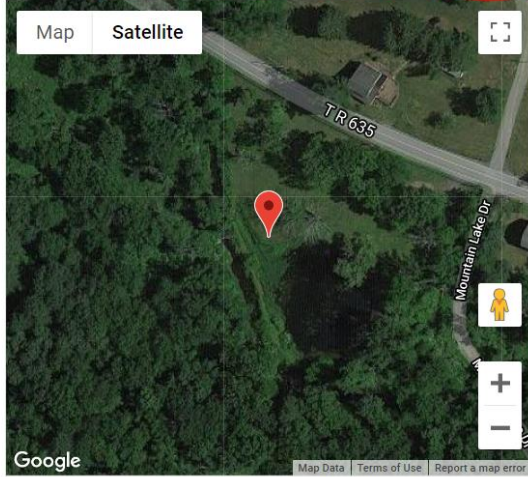
Monitor My Watershed **My Sites** Browse Sites Time Series Analyst Help ⓘ Admin 🧑 Logged in as dbressler ▾

Forest Hill Run on Fendelander Property (PKFH1S) ☐ Follow

 VIEW TOKEN UUID LIST  EDIT  DELETE

👤 Deployment By	Edie Stevens
🏢 Organization	Brodhead Watershed Association
📅 Registration Date	May 21, 2018, 2:22 p.m.
📅 Deployment Date	-
📍 Latitude	41.106106
📍 Longitude	-75.300068
📏 Elevation (m)	304.0
📏 Elevation Datum	-
🌿 Site Type	Stream
🗉 Stream Name	Forest Hill Run

Map Satellite 



Google Map Data Terms of Use Report a map error

Uploading files to Monitor My Watershed

- Scroll down the main site page and click on “MANAGE SENSORS” about halfway down

The screenshot shows the Monitor My Watershed website interface. At the top, the browser address bar displays "Not secure | monitormywatershed.org/sites/PKFH1S/". The website header includes the "Monitor My Watershed" logo, navigation links for "My Sites", "Browse Sites", and "Time Series Analyst", and a user status bar showing "Help", "Admin", and "Logged in as dbressler".

The main content area features a "Sensor Observations at this Site" section. Within this section, there is a "DOWNLOAD SENSOR DATA" button and a "MANAGE SENSORS" button, which is circled in red. Below these buttons, there is an information box stating: "Only the most recent 72 hours of available data are shown on the sparkline plots. The plots are broken when there are gaps in the data longer than 6 hours. Plots shaded in green have recent data. Plots shaded in red have not reported data in the last 72 hours." To the right of this information box is a "Time Series Analyst" link with the text "View data for this site." and a "Related Link" icon.











At the bottom of the page, there are two data panels: "Water depth" and "Temperature", both marked as "Provisional". Both panels display the message "No data exist for this variable."

Uploading files to Monitor My Watershed


- Scroll to bottom of page and click the paper clip tab to get the file you'd like to upload

← → ↻ 🏠 ⓘ Not secure | monitormywatershed.org/sites/update/PKFH1S/sensors/ 🔍 ☆ 🔄 ⓘ

Monitor My Watershed® My Sites Browse Sites Time Series Analyst [↗](#) Help [↗](#) Admin 🧑 Logged in as dbressler ▾

Temperature Depth Sensor	10_Temp		aqueous		
CTD-10 Electrical Conductivity Temperature Depth Sensor	Decagon_CTD-10_Cond	Microsiemen per Centimeter	Liquid aqueous		
OBS-3+ Turbidity Sensor	Campbell_OBS3_Turb	Nephelometric Turbidity Unit	Liquid aqueous		
OBS-3+ Turbidity Sensor	Campbell_OBS3_Turb	Nephelometric Turbidity Unit	Liquid aqueous		
Mayfly Data Logger	EnviroDIY_Mayfly_Temp	degree celsius	Equipment		
Mayfly Data Logger	EnviroDIY_Mayfly_Batt	Volt	Equipment		

Upload a data file (.csv)

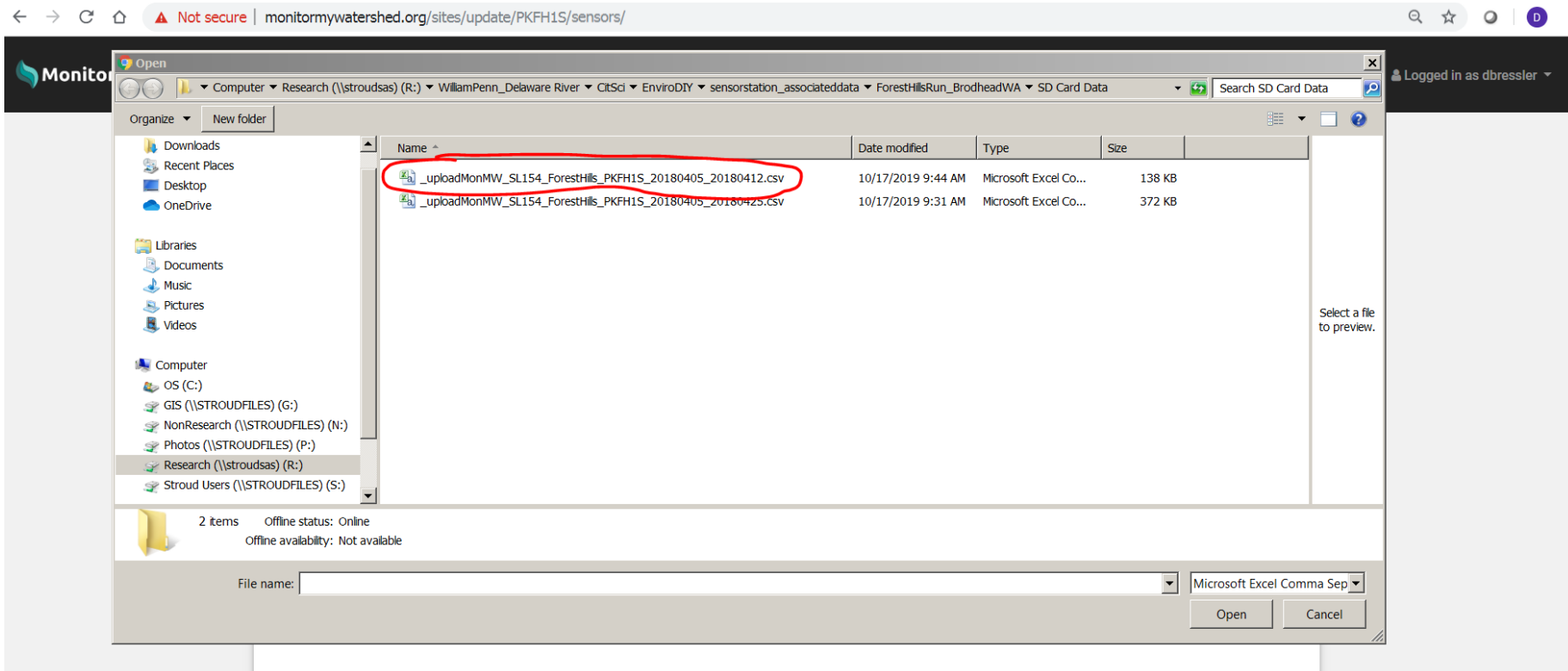


No file chosen.

BACK TO SITE DETAILS

Uploading files to Monitor My Watershed

- Scroll to bottom of page and click the paper clip tab to get the file you'd like to upload



Uploading files to Monitor My Watershed

- Press Upload tab (below) and wait (it might take a few minutes and there is no spinning wheel to indicate progress)
 - If it's successful a tab will pop up for a few seconds indicating successful upload
 - If it's unsuccessful it will go for several minutes and then a pop up will appear indicating not successful

The screenshot shows the 'Monitor My Watershed' web application. The browser address bar indicates the URL is `monitormywatershed.org/sites/update/PKFH1S/sensors/`. The page header includes the logo and navigation links: 'My Sites', 'Browse Sites', and 'Time Series Analyst'. On the right, it shows 'Help', 'Admin', and 'Logged in as dbressler'. The main content area displays a table of sensors:

OBS-3+ Turbidity Sensor	Campbell_OBS3_Turb	Nephelometric Turbidity Unit	Liquid aqueous		
OBS-3+ Turbidity Sensor	Campbell_OBS3_Turb	Nephelometric Turbidity Unit	Liquid aqueous		
Mayfly Data Logger	EnviroDIY_Mayfly_Temp	degree celsius	Equipment		
Mayfly Data Logger	EnviroDIY_Mayfly_Batt	Volt	Equipment		

Below the table is the 'Upload a data file (.csv)' section. It features a file icon, a text input field containing the filename `_uploadMonMW_SL154_ForestHills_PKFH1S_20180405_20180412.csv` (137.72 KB), and a blue 'Upload' button with a cloud icon. The 'Upload' button is circled in red. At the bottom left of this section is a 'BACK TO SITE DETAILS' button.

Uploading files to Monitor My Watershed

- You can confirm data are uploaded by looking at the narratives below sparkline plots (red below) or pressing the “DOWNLOAD SENSOR DATA” tab (red below)
- Will not be able to visualize data right away – may take up to an hour before data appear in sparkline plots and can be visualized (in blue below)

